

## CALIBRATION TECHNIQUE FOR COINCIDENCE IMAGING SYSTEMS

Abstract of the Disclosure

5 An imaging method using a plurality of radiation  
detectors (12) is disclosed. A plurality of coincidence  
radiation events are measured (60) associated with a point  
radiation source (18). Initial values are assigned (62)  
for fitting parameters. Lines of response (LOR) are  
10 calculated (64) based upon the fitting parameters and the  
measured radiation events. A figure of merit is generated  
(66) that characterizes the apparent size of the point  
radiation source based upon the LOR's. The fitting  
parameters are optimized (70) using a minimization  
15 algorithm which includes iteratively repeating the  
calculating (64) and generating (66) steps to produce a  
minimized figure of merit. Correction factors are  
extracted from the optimized fitting parameters (72). A  
set of radiation data is acquired from an associated  
20 subject. The radiation data is corrected for mechanical  
camera misalignment by correcting the spatial coordinates  
of the detected radiation events using the correction  
factors. An image representation is reconstructed from  
the corrected radiation data.